

Serial No: 10/665,963

Examiner: D. Davis

Title: MAGNETIC RECORDING MEDIUM WITH INCREASED PRODUCT OF COERCIVE FORCE

REMARKS/ARGUMENTS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claims 1-8 remain pending in this application.

Objections to the Specification

The title of the invention was objected to as not descriptive. The title has been revised. Applicants invite the Examiner's suggestions if the title is not suitable.

Claim Rejections – 35 USC §112

Claims 2, 4, 7 and 8 are rejected under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement. Applicants respectfully traverse this rejection.

Regarding claim 2, the rejection asserts the specification does not enable a skilled artisan to make and/or use a recording medium satisfying the product of the coercive force and saturated magnetization relationship that approaches infinity (∞). Claim 2 requires a magnetic recording medium according to claim 1, wherein the product $M_s \cdot H_c$ of the coercive force H_c and the saturated magnetization M_s satisfies the following relationship: $M_s \cdot H_c > 3 \times 10^6 \text{ erg/cm}^3$. Claim 2 therefore only requires the product of the coercive force and saturated magnetization be greater than $3 \times 10^6 \text{ erg/cm}^3$, which is not impossible to meet. Six embodiments of the invention are described in the specification in which each embodiment is shown to satisfy the relationship: $M_s \cdot H_c > 3 \times 10^6 \text{ erg/cm}^3$. One skilled in the art knows there is an inherent, albeit not precisely known, upper limit on the product of the coercive force and saturated magnetization; and therefore, it is not necessary to exactly define what that limit is. The rejection impermissibly distorts the overall meaning of the claim to preclude manufacturing the claimed apparatus. For at least these reasons, claim 2 is enabled.

Regarding claims 4, 7 and 8, the rejection asserts the specification does not enable a skilled artisan to make and/or use a length or thickness that includes every value up to and approaching zero. Applicants respectfully traverse this rejection.

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Claim 4 requires the shortest mark length of recording marks that correspond to a pattern of the recorded information formed in the recording layer is 0.2 μm or less. Since by definition, a mark must have a length greater than 0 in order to exist, and since claim 4 only requires the mark to be no greater than 0.2 μm , the embodiment of claim 4 is not impossible to meet. Further, one skilled in the art knows there is an inherent, albeit not precisely known, lower limit on the mark length; and therefore, it is not necessary to exactly define what that limit is. The rejection impermissibly distorts the overall meaning of the claim to preclude manufacturing the claimed apparatus. For at least these reasons, claim 4 is enabled.

Claim 7 requires the Tb, Fe and Co contained in the recording layer are laminated periodically with a thickness of 2 nm or less. One skilled in the art knows that a laminated layer by definition must have a thickness greater than zero in order to exist, and since claim 7 only requires a thickness no greater than 2 nm, the embodiment of claim 7 is not impossible to meet. Further, one skilled in the art knows there is an inherent, albeit not precisely known, lower limit on the laminated layer thickness; and therefore, it is not necessary to exactly define what that limit is. The rejection impermissibly distorts the overall meaning of the claim to preclude manufacturing the claimed apparatus. For at least these reasons, claim 7 is enabled.

Claim 8 requires, in the recording layer, layers of different materials or different composition rates are periodically laminated with each layer having a thickness of 2 nm or less. Claim 8 is enabled for the same reasons as claim 7.

Section 2173.05(c), paragraph II of the MPEP clearly exemplifies a claim directed to an amount of one ingredient that should be maintained at less than 7 mole percent, and that was found to be patentable.

Further, none of the claims 2, 4, 7, or 8 recite a relationship that is a mathematical impossibility. For at least these reasons, claims 2, 4, 7 and 8 are enabled.

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Claim Rejections – 35 USC §102

Claims 1, 3 and 5-6 are rejected under 35 U.S.C. §102(b) as anticipated by Shiratori et al. (US 6,027,805). Applicants respectfully traverse this rejection.

Claim 1 requires the recording layer is formed so that a product of a coercive force H_c and saturated magnetization M_s of the recording layer ($M_s \cdot H_c$) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer can be decreased to a desired value.

The rejection incorrectly asserts that Shiratori et al. teaches the above feature of claim 1. Shiratori et al. discloses only that a first magnetic layer has large saturation magnetization (saturated magnetization) at room temperature (column 15, lines 43-46) and compensation composition (i.e. compensation temperature) of a second magnetic layer is near that of a third magnetic layer (column 15, lines 39-40). Even if the recording layer of the claimed invention corresponds to the third magnetic layer (recording layer) of Shiratori et al., Shiratori et al. is completely silent about the feature of claim 1 that requires the recording layer is formed so that a product of a coercive force H_c and saturated magnetization M_s of the recording layer ($M_s \cdot H_c$) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer can be decreased to a desired value.

For at least these reasons, claim 1 is patentable over Shiratori et al.

Claims 3 and 5-6 are also patentable over Shiratori et al. since they depend ultimately from claim 1.

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Claim Rejections – 35 USC §102/103

Claims 2, 4 and 7-8 are rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative under 35 U.S.C. §103(a) as obvious over Shiratori et al. Applicants respectfully traverse this rejection for at least the same reasons discussed above regarding the rejection of claims 1, 3 and 5-6.

Favorable reconsideration in the form of a Notice of Allowance is requested. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

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Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902-0902
Minneapolis, MN 55402-0903
(612) 455-3800

By: 

Douglas P. Mueller
Reg. No. 30,300
DPM/dnh